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| **Common Core State Standard(s):**  **6.NS.4** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. | **Instructional Resources:**   * **Greatest Common Factor Notes** * **Factor Chain Game - I Have Who Has** * **Factor Tree Matching Problems** * **Factor Tree Matching Answer Sheet** * **GCF Word Problems** * **Puzzling Products** * **Check Up on Factors and Prime Factorization** * **The Venn Factor** * **The Ultimate Challenge** * **Venn Diagrams and GCF's activity** * Holt 4-2 and 4-3 |
| **Mathematical Practice Standard(s):**  **MP. 3** Construct viable arguments and critique the reasoning of others. | **Warm-up:**  As a quick review and warm-up have the students answer the following questions.   1. Give an example of a prime number. How do you know it is prime?   [2, it only has two factors one and itself. Regardless of the number chosen, the reason should remain the same.]   1. Give an example of a composite number. How do you know it is composite?   [4, it has more than two factors. Regardless of the number chosen, the reason should remain the same.]   1. What are the factors of 12?   [1, 2, 3, 4, 6, 12]   1. How do you know 3 is a factor of 12?   [It is a number that can be multiplied to get 12 or because it divides evenly into 12. |
| **Learner Objective:**  As a result in learning, students should be able to… find the greatest common factor (GCF) by using prime factorization. |
| **Instruction:**  **Day 12:**  Instruction  Use Holt 4-2 and 4-3 to review with students factors and prime factorization. The teacher will model these concepts to students.  Independent Practice  The students will work on **factor tree matching game**. Students can complete **Prime factorization Check up**.  **Day 13:**  Instruction  Students will use the **greatest common factor notes** and review factors. Teacher will model with students how to find the prime factorization of 24.   * The students will practice finding the prime factorization of numbers. * The teacher will model with the students how to find the GCF of two numbers by using the Venn diagram method. * The students will practice finding the GCF of two numbers by using the Venn diagram method. * Facilitate Guided Practice   Independent Practice   * Students will work with a partner on the Venn Factor Activity and answer questions on their individual sheet. <http://illuminations.nctm.org/LessonDetail.aspx?id=L859>. The optional activities can be used for enrichment (Puzzling Products and Ultimate Challenge Activity). * Students can work on GCF Word Problems. | |
| **Comment / Notes:**  Additional Resources  **Re-teaching**   * Students can work with a partner to practice finding the GCF with **Venn Diagrams and GCF's activity**.   **Enrichment**   * Show students the **Puzzling Products** overhead. The prime factors have already been sorted into the Venn diagram. Have students find the two numbers being compared. [60, 140] Multiply all the numbers in one circle to find one of the numbers being compared and repeat the same procedure with the other circle.  1. Organize students into pairs. Have students draw a Venn diagram on their white board or paper. Partner A fills in the Venn diagram with prime factors and partner B finds the two numbers being compared. Then partners switch roles. 2. Students can find the least common multiple of two or more numbers by multiplying all the prime factors in the Venn diagram. 3. Use the Euclidean algorithm to find the greatest common factor.   To find the greatest common factor of 56 and 42, divide 56 by 42. Repeat the process using the divisor as the new dividend and the remainder as the new divisor. Continue this process until the remainder is zero. The last divisor is the greatest common factor. In this case, the last divisor 14 is the greatest common factor of 56 and 42.  56 = 1 × 42 + 14 or 56 ÷ 42 = 1 R 14  42 = 3 × 14 + 0 or 42 ÷ 14 = 3 R 0   * Have students complete the **Ultimate Challenge** activity sheet. This activity sheet provides students with challenge questions that enrich the lesson. * This activity works more with abundant, deficient and perfect numbers. Fiddling with Factors comes from the TAP Math Problems. The students will use the numbers 1 -30 to identify whether the number is abundant, deficient or perfect. Once they complete Part 1, then they will answer questions in Part 2. | |